

Work Statement

The American Embassy in **Astana / Kazakhstan** requires Preventative Maintenance (PM) services for the Building Automation System(s) (BAS) installed at Post.

The Contractor shall provide PM services for the upkeep of the installed Building Automation System(s) (BAS). The work required shall include, but is not limited to: Preventative maintenance of BAS Systems; Investigation and troubleshooting of BAS related issues; and BAS trend and alarm configuration.

These PM Services shall result in all systems serviced under this agreement being in good operational condition when the work is completed.

BAS PM Services shall be performed on BAS installed in the unclassified areas of the Post.

BAS PM Services shall be performed on BAS installed in the Controlled Access Areas (CAA) of the Post. Additional clearance and security provisions are required to access and work in the CAA sections of the Post.

Frequency of BAS PM Service Visits: BAS PM Services will involve multiple site visits per year to the Post. Refer to "Section B: Services and Prices/Costs" for the number of site visits the Contractor is required to make each year.

Exclusions: This contract does **NOT** include the repair of equipment, the replacement or procurement of parts, the replacement of BAS systems, software upgrades or re-commissioning of the BAS. Such work, if needed, will be accomplished by separate purchase order. This exclusion does not apply if the work (parts and/or services) is to correct damage caused by Contractor negligence.

Work outside the scope of PM Services, including the repair/replacement/procurement of any parts, must be approved by the COR prior to performance of the work. **Non-PM Service work, including procurement and configuration of portable computing equipment that may be required in the performance of PM activities, will be separately priced out by the Contractor for the Government's approval and acceptance as a separate purchase order.**

The Government has the option to accept or reject the Contractor's quote for work outside the PM Services SOW and reserves the right to obtain similar work (parts and/or services) from other competitive sources. If the Contractor proceeds to perform any non-PM Service work (including the repair/replacement of any parts) without COR approval, the Contractor will be performing this work "At-Risk" and The Government will not be obligated to pay for this work or any additional work required to resolve issues arising from this work.

When allowed by the COR, the Contractor may utilize Government-purchased spare parts that are maintained at Post if awarded repair/replacement work. Check with the COR to find out what parts are available on hand prior to submitting a proposal to the Government for non-PM Service work.

All work shall be accomplished in a manner which: 1) conforms to the intent of all applicable ANSI/NSF, ASHRAE, AWWA, NFPA/NEC, U.S. EPA environmental and DOS policy, procedures, and directives; 2) causes no contamination to other parts of the building; 3) endangers none of the building occupants or workers during these task; and 4) leaves the areas safe for occupancy.

General: The Contractor shall provide all necessary managerial, administrative and direct labor personnel; as well as all transportation, tools, instrumentation, equipment and supplies required; to perform the BAS Preventative Maintenance (PM) Services defined in this Scope of Work (SOW). The Contractor shall provide the services of qualified, trained, manufacturer certified technicians to perform the required BAS PM services.

Building Automation Systems to be serviced: The Contractor shall maintain the Building Automation Systems in a safe, reliable and efficient operating condition. The following information provides a summary of each BAS that is to be serviced.

BAS #1 (Non CAA)

- (a) Manufacturer of the BAS: Johnson Controls Incorporated (JCI)
- (b) BAS System Product Line Name: Metasys
- (c) BAS Software Version: 2.0.0.70.0
- (d) BAS Communication Network Type: Proprietary
- (e) Quantity and Type of Controllers Installed: 144 Building Level Controllers; 24 Application Specific Controllers

BAS #2 (CAA)

- (a) Manufacturer of the BAS: Johnson Controls Incorporated (JCI)
- (b) BAS System Product Line Name: Metasys
- (c) BAS Software Version: 2.0.0.70.0
- (d) BAS Communication Network Type: Proprietary
- (e) Quantity and Type of Controllers Installed: 69 Building Level Controllers; 20 Application Specific Controllers

Equipment Controlled and/or Monitored: The following is a summary of the types and quantities of equipment controlled and/or monitored at Post by BAS:

- (a) Air Handling Units – Quantity 13

- (b) Terminal Units (Single Duct Cooling Only) – Quantity 122
- (c) Terminal Units (Single Duct w/Hot Water Reheat) – Quantity 91
- (d) Chilled Water System (Primary/Secondary Type) – Quantities: 2 Water Cooled Chillers, 2 Primary Chilled Water Pumps, 2 Secondary Chilled Water Pumps, 4 Free Coolers
- (e) Heating Hot Water System (Primary/Secondary Type) – Quantities: 1 Boiler, 2 Primary Heating Hot Water Pumps, 2 Secondary Heating Hot Water Pumps
- (f) Unit Heater / Exchanger (Hot Water Type) – Quantity 1
- (g) Computer Room Air Conditioning Units (Cooling Only) – Quantity 2
- (h) Domestic Water Filtration System (Monitoring Only) – Quantity 1
- (i) Fuel Oil System (Monitoring Only) – Quantity 1
- (j) Domestic Water Treatment System (Monitoring Only) – Quantity 1
- (k) Fire Alarm System (Interlocks & Monitoring Only) – Quantity 1

Buildings where BAS are installed: The Post is composed of multiple buildings. The following buildings at Post utilize Building Automation Systems:

- (a) Chancery Building – Johnson Controls Incorporated
- (b) GSO Warehouse Building – Johnson Controls Incorporated
- (c) MSGQ - Johnson Controls Incorporated
- (d) CMR - Johnson Controls Incorporated

BAS Preventative Maintenance (PM) Services: The Contractor shall perform BAS Preventative Maintenance services for the Building Automation Systems indicated. Provide the necessary investigative services to ensure BAS controls are working as designed and in accordance with documented operating sequences. The objective of scheduled preventive maintenance is to eliminate system malfunction, breakdown and deterioration when controlled/monitored equipment is activated/running. BAS PM Services shall include, but are not limited, to the following tasks:

Generation of an Operational Baseline and Checklists: Prior to contract work commencement, the Contractor shall submit to the COR for approval a schedule of PM Service activities and a description of the PM Service tasks which the Contractor plans to provide. Upon the Contractor's first BAS PM visit, a Baseline for the operation of the Building Automation Systems shall be developed from the existing As-Built Data; Operation & Maintenance Data; Set Point Data and Time Schedule Data found at Post. From this documentation, the Contractor shall develop site specific Checklists for the BAS and associated equipment monitored and controlled by a BAS. These Checklists will be used by the

Contractor when Preventative Maintenance is performed to verify the Building Automation Systems are functioning as originally intended. There shall be one checklist for each system controlled and/or monitored by a BAS. These checklists, a revised PM Service activity schedule and PM Service task description list shall be submitted for COR approval.

Use of Checklists: The Contractor shall perform BAS PM Services at the frequencies indicated using the site specific checklists developed for the equipment and systems called out in this SOW. The Contractor's technician shall sign off on every item of each checklist and leave a copy of the signed checklists with the COR or the COR's designate after the PM visit. In addition, copies of all completed checklists shall be included and submitted as part of the Trip Report.

Periodic PM Activities: At a minimum, the following PM Service activities are required to occur during each site visit.

- (a) Check BAS Communication Network: Validate the network connectivity of all BAS controllers, Operator Workstations, Servers, and Network components (repeaters, switches, hubs, etc...). Investigate and remediate any issues found.
- (b) Confirm Time Schedules: Review existing time schedules and validate correct operation based on actual time of day facility occupancy. Adjust time schedules as needed to reflect the actual occupancy patterns of the buildings at Post.
- (c) BAS Investigation and Troubleshooting: The Contractor shall provide investigation and troubleshooting services for issues related to BAS operation as required in this Statement of Work or as requested by the FM at Post during a PM Services site visit.
 - (1) The Contractor shall review Facility Maintenance logs since the last visit to Post and determine if there are any operations issues which need to be checked.
 - (2) The Contractor shall determine the cause(s) of any problems found with the BAS and identify the repairs/modifications to the BAS that will be needed to correct these problems.
 - (3) The Contractor shall clearly document in the Trip Report any BAS problems that are found, the causes of these problems, proposed repairs/modifications to the BAS required to resolve these problems, parts required to correct these problems and a cost estimate for the proposed repairs/modifications to the BAS.
 - (4) The Contractor shall submit recommended modifications of the BAS to the COR for approval prior to performing any work. Modifications are changes to the BAS which deviate from the BAS Design or As-Built documents. These types of changes are typically associated with the Sequences of Operation, but could involve the addition or removal of sensors and/or controllers. Typically modifications will be made to resolve building operational issues or to improve/enhance BAS functionality.

(d) BAS Trend and Alarm Configuration: The Contractor shall review the Alarm History and Trend log files which have accumulated since the previous visit to the site. Any problems noted from this review shall be investigated and reported on.

(1) The Contractor shall validate the correct reporting of alarms and verify that the correct codes and messages are being reported.

(2) If no trends or alarms are configured in the BAS, the Contractor shall coordinate with the Facility Manager and configure the trends and alarms desired by the Post.

(3) The Contractor shall confer with the Facility Manager after reviewing the BAS Operator Workstation graphics and trend logs to determine if any modifications are desired to the presentation of information. Minor changes to improve graphics and reports shall be implemented as needed.

(4) Archive data as necessary to free up hard drive space on the BAS Operator Workstation / Server for future trend and data storage.

(e) Evaluate Operator Workstation(s)/Server(s): Validate current application software release, define if there is a need to update the software or computer hardware and provide a migration path for updating software to the new release if needed.

(f) Backup Retention: The Contractor shall create a current backup of the data, programming, graphics and settings for all of the controllers in the BAS at the BAS Operator Workstation/Server. This backup shall be burned on to CD or DVD disks along with a backup of the BAS Operator Workstation/Server Software. Two sets of backup disks shall be created for each Building Automation System at Post on which PM is performed. Each backup shall be configured to allow Facility Maintenance staff to recover the BAS in the event of a BAS failure. Both sets of backup disks shall be turned over to the Facility Manager before the Contractor departs Post. The Contractor is not allowed to retain a copy of these backups.

(g) Password Retention: The Contractor shall create a listing of the BAS usernames and passwords that exist within the BAS Operator Workstation and/or Server that are used to access the BAS. A BAS username/password listing shall be created for each Building Automation System at Post on which PM is performed. These listings shall be turned over to the Facility Manager before the Contractor departs Post. The Contractor is not allowed to retain a copy of these lists.

Annual PM Activities: At a minimum, the following PM Service activities are required to occur at least once a year. It is the intention of this SOW that tasks noted here, which cannot be realistically completed during a single site visit, shall be broken up to occur over multiple site visits.

(a) Panel, Controller and Wiring Inspection:

(1) Physically inspect all field panels and controllers for damage, excessive dirt or moisture and clean/vacuum as necessary.

- (2) Verify proper voltage at all control transformers.
 - (3) Inspect all connections, wire raceways in panels and wire arrangements. Remove any abandoned devices and wiring and update panel diagrams as may be necessary to reflect current arrangements and configurations.
 - (4) Verify condition of local battery/UPS that may be connected to the panel power source. Recommend replacement as may be necessary.
- (b) Point-to-Point Checkout: Hardware points in the BAS shall be verified against actual field conditions. This checkout shall verify that each point indicated in the BAS is the actual physical point connected to the controller and the point is functioning properly. Any discrepancies shall be investigated and adjustments made as necessary so that all sensors monitored and devices controlled by the BAS match the associated points indicated in the BAS and provide the desired functionality.
 - (c) Sensor/End Device Calibration Verification: The calibration of hardware points in the BAS shall be verified against actual field conditions. Where sensors, operators and other end devices are capable of being adjusted, the Contractor shall perform the calibration. Sensors shall be calibrated to within the accuracy range stated in the associated manufacturer's literature. Operators and other end devices shall be adjusted so that the BAS output signal corresponds to operator's or end device's full control range. Where sensors, operators and other end devices are not capable of being adjusted, the Contractor shall note the deviation between actual and measured value for sensors and between actual output function and commanded signal.
 - (1) Sensors, operators and other end devices which are not within manufacturers' recommended tolerances at the end of the calibration verification process shall be designated as failed and documented for submission to the COR.
 - (2) The contractor shall use calibrated instrumentation with a higher accuracy than the sensor, end device or operator being calibrated. Calibrated instrumentation used shall have been certified by an independent calibration agency within a year of the dates used. Certificates of calibration shall be submitted to the COR for each test instrument prior to use at Post.
 - (d) Confirmation of Sequences: Review the operation of BAS controlled equipment against the As-Built Sequences of Operation. Where functionality does not follow the Sequences of Operation, document the deviation for submission to the COR. Based on consultations with Facility Maintenance personnel and the COR appropriate action shall be determined and adjustments made if deemed necessary. Provide updated documentation (As-Built documents and Operation & Maintenance Manuals) for any adjustments made to the Sequences of Operation including operating schedules and trend reporting.
 - (e) Replacement of Failed Sensors, Operators and End Devices: When sensors, operators or other end devices are determined to have failed, the Contractor shall provide a proposal which lists the failed parts along with the associated costs to procure and replace the failed part(s) to the COR for approval. If

the part that failed is available in the Post's Spare Part Inventory and the COR permits the use of spare parts, the Contractor shall modify the proposal to utilize the spare part now and procure a replacement part to replenish the Spare Part Inventory later. If a Post's Spare Part Inventory does not include the appropriate part or the COR will not allow the use of Post's spare parts, the Contractor's proposal shall include procurement of the part needed and replacement of the failed part during the next PM visit to the Post. If the Post chooses to procure the parts on their own, the contractor's proposal shall include only the costs to replace the failed part(s).

(f) Replacement of Expendable Sensors: Sensors for which product data indicates there is a defined operating life expectancy shall be tracked and replaced at the time intervals recommended by the manufacturer. For HVAC applications these would typically be Humidity Sensors, Carbon Monoxide Sensors and Carbon Dioxide Sensors. There are other specialty sensors that can fall under this category and the Contractor shall make note of all expendable sensors installed when the initial Baseline for the BAS is developed. When called for by the replacement schedule, the contractor shall provide a proposal which lists the expiring parts along with the associated costs to procure and replace the part(s) to the COR for approval. These parts shall be replaced at the next PM visit to Post. If the Post chooses to procure the parts on their own, the contractor's proposal shall include only the costs to replace the part(s).

(g) Evaluate BAS End of Life Cycle: For each BAS review the system and provide direction with regard to the obsolescence of all or any portion of the system.

(h) Review Post's Spare Part Inventory: Review the BAS spare parts inventory at Post and determine what parts need to be added to the inventory and update the list. Develop a recommended stock of spare parts if one does not already exist and provide it to the COR.

Manufacturers' Recommended PM: It is the responsibility of the Contractor to perform all manufacturers' recommended preventive maintenance. This shall be completed in addition to the tasks listed above if there are any discrepancies.

CODES AND REGULATIONS

U.S. Government codes and regulations, the applicable laws, codes, and standards of foreign countries, and industry standards apply and are incorporated herein by reference and made part of the contract documents.

Contractor shall adhere to work practices and procedures set forth in applicable codes, regulations, and standards, including obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable U.S. EPA and U.S. OSHA codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

The Contractor shall assume full responsibility and liability for the compliance with all applicable U.S. EPA and U.S. OSHA regulations and shall hold the U.S. Government and its representatives harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulations on the part of the Contractor, their employees, or subcontractors.

CONTRACTOR AND PERSONNEL QUALIFICATIONS

The Contractor shall comply with ANSI/NSF, ASHRAE, HUD, NFPA/NEC, U.S. EPA, and U.S. OSHA laws, ordinances, regulations, requirements and DOS policy, procedures, and directives applicable to the Building Automation System and HVAC work efforts hereunder.

The Contractor shall employ a competent supervisor or foreman, satisfactory to the Government, to work at all times with the authority to act for the Contractor.

The Contractor shall employ competent technicians, programmers, etc..., satisfactory to the Government, to perform the work and services required. Technicians, programmers, etc... shall have a minimum of 5 years of experience performing the type of work described within this SOW and shall be trained and certified by the manufacturer of the BAS they are tasked to work on.

Contractor's employees not trained and certified by the manufacturer of the BAS will not be permitted to work on the BAS.

Biographical data (a resume) and Proof of certification from the BAS hardware and software manufacturer shall be submitted for personnel providing on site BAS PM Services under this SOW.

The personnel who are proposed by the Contractor to be on site at Post shall at a minimum have a security clearance at the "Secret" level, verified by Diplomatic Security (DS).

The Contractor shall not change the proposed controls technicians and/or site personnel without the permission from the Contracting Officer Representative (COR), and shall submit such a request in writing with justification for change.

The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by U.S. OSHA. The Contractor shall hold the Government and the Government's representative harmless for failure to comply with any applicable work, safety and health or other regulations on the part of himself, his employees, or his subcontractor(s).

The Contractor shall provide a means of transportation to bring personnel, supplies, tools and equipment to and from the Post. The Contractor shall be responsible for providing this service. The costs shall be included in the Contractor's proposal.

The Contractor shall at all times enforce strict discipline and good order among all persons employed to work and shall not employ any unfit persons not skilled in the task assigned to them.

SUBMITTAL AND DELIVERABLE REQUIREMENTS

General Submission / Documentation Requirements:

Unless indicated otherwise, each Contractor submission shall include three (3) sets of the documentation required in this Statement of Work. The documentation shall be delivered to the Contracting Officer Representative (COR). Three (3) Electronic Copies of these documents will also be submitted to the Contracting Officer Representative (COR) on suitable media. Two (2) sets of documents and electronic copies shall remain at Post. One (1) set of documents and electronic copies shall be provided to OBO for record keeping purposes.

Electronic documentation shall be submitted in the form of searchable PDF files. Documents shall also be submitted in a Microsoft Word 2007 compatible file format. Any drawings included in the documentation provided shall also be submitted in the form of AutoCAD 2010 *.dwg files. All electronic documentation shall be provided on either CD or DVD media. Thumb drives or other forms of portable media are not allowed.

Some documentation may be considered "Classified" in accordance with the Security Classification Guide for the Design and Construction of Overseas Facilities. Information released that is specific to the CAA area will need to follow classification, storage, and delivery guidelines for "Secret" classification. See "Section H: Special Contract Requirements" for instructions on handling, marking, and transmission of the "Classified" Documentation to the Contracting Officer Representative (COR).

Initial Submittal: Prior to performing any BAS PM Services at Post the Contractor shall submit the following information for review and approval. Submittals will be reviewed by both Post and OBO.

A draft / tentative schedule and description of preventive maintenance tasks which the Contractor plans to provide.

Certificates of calibration for each test instrument showing certified calibration within a year from date of intended use.

Biographical data (resumes) for personnel providing on site BAS PM Services.

Proof of certification, from the BAS hardware and software manufacturer, for personnel providing on site BAS PM Services.

Checklist Submittal: After the initial BAS PM Service visit at Post has been completed, in addition to submitting an official Trip Report, the Contractor shall also submit the following information for review and approval. Submittals will be reviewed by both Post and OBO.

An updated / finalized schedule and task description list of preventive maintenance tasks which the Contractor will provide as part of the regular PM Services. This will be based on actual conditions and system configurations noted by Contractor.

The checklist forms developed for each system controlled and monitored by the BAS, based on actual condition and system configurations noted by the Contractor.

Trip Reports: The Contractor shall be responsible for providing a trip report within 14 calendar days after returning from each site visit which clearly documents the BAS PM Service activities undertaken at Post. The Contractor shall be responsible for documenting all work and activities performed while on site. Each Trip Report shall include, at a minimum, the following information:

A list, with descriptions, of the tasks that were performed, the issues that were found, the cause of these issues and the corrective measures that were taken to resolve these issues;

A list, with descriptions, of all modifications made to the BAS system software and hardware;

A list, with descriptions, of the deficiencies found that resulted in a need for future corrective action, the Contractor's recommendations to correct these deficiencies and the Contractor's suggestions for improvements to the BAS. This section shall include providing a proposal for the work that must be performed; a list of any parts required and a cost estimate for the work proposed.

Copies of all checklists completed while on site. Include a scanned PDF of the checklists completed while performing PM Services on the BAS.

A list of all expendable sensors installed and a replacement schedule. This section shall include providing a proposal which lists the expiring parts along with the associated costs to procure and replace the parts.

A list of recommended spare parts required to sustain operations and a cost estimate for the proposed spare parts.

Updated BAS As-Built Documents & Operation & Maintenance Manuals: When work is performed which modifies the existing BAS configuration or programming, the Contractor will be responsible for providing updated As-Built documents and Operation & Maintenance Manuals to accurately reflect the current configuration and programming of the BAS.

Data Backup Retention: Two (2) BAS data backup disks shall be turned over to the Post Facility Manager for each BAS. One disk will be for storage within a secure safe at post before departing Post.

The second disk shall be sent by the Facility Manager to OBO for centralized backup. The Contractor is not allowed to retain a copy of these backups.

Password Retention: One (1) BAS username/password listing for each BAS shall be turned over to the Post Facility Manager for storage within a secure safe at the Post. The Contractor is not allowed to retain a copy of these lists.

End of Statement